1.	NAME OF CONTRACTOR:		**ENGINEERING CHANGE PROPOSAL (ECP)**	PCN:	DATE:	PAGE 1 OF
2.	CONTRACT NUMBER:	CAGE CODE:	SYSTEM DESIGNATION:	ECP NUMBER:	SUFFIX:	REV.:
3.	RECOMMENDED PRIORITY: ☐ EMERGENCY ☐ URGENT ☐ ROUTINE					
4.	CEI NUMBER AND NOMENCLATURE:			PART OR LOWEST ASSEMBLY AFFECTED		
				PART NUMBER:	NAME:	
5.	TITLE OF CHANGE:					
6.	JUSTIFICATION FOR CHANGE (Include consequences if not incorporated): ☐ REQUESTED ☐ DIRECTED BY PROCURING ACTIVITY PER REF.: _____					
7.	ENVIRONMENTAL IMPACT: ☐ YES ☐ NO If "YES", identify the enclosure containing the Environmental Impact Statement:					
8.	DESCRIPTION OF CHANGE (Alternate solutions included): ☐ YES ☐ NO					
9.	DATE BY WHICH CONTRACTUAL AUTHORITY IS NEEDED:					

10. **EFFECTIVITY AND MANDATORY CHANGE PERIOD(S) FOR INCORPORATION**

VEHICLE/SITE AND ITEM SERIAL NUMBER	CHANGE PERIOD	MOD. KIT DELIVERY DATE	EST. M/H FOR MOD. KIT INSTL.	OUT-OF-SERVICE TIME

11.

EFFECT ON:		ITEM	ENCL.	PARA.
YES	NO			
☐	☐	PREVIOUSLY ISSUED MODIFICATION INSTRUCTIONS AFFECTED (EXPLAIN)	_____	_____
☐	☐	PROOFING OF MODIFICATION INSTRUCTIONS AND KIT INSTALLATION REQUIRED (EXPLAIN) PROOFING LOCATION: _____	_____	_____
☐	☐	RETEST REQUIRED (IDENTIFY TEST INVALIDATED BY CHANGE)	_____	_____
☐	☐	REQUALIFICATION REQUIRED (INCLUDE DESCRIPTION OF TEST PLAN FOR REQUALIFICATION)	_____	_____

12.	NAME OF CONTRACTOR:	ECP NUMBER:	PCN:	PAGE 2 OF

	EFFECT ON:		ITEM	ENCL.	PARA.
	YES	NO			
13.	☐	☐	DEVELOPMENT REQUIREMENTS AND STATUS		
	☐	☐	SAFETY		
	☐	☐	RELIABILITY (INCLUDE RELIABILITY DATA SUMMARY)		
	☐	☐	SERVICE LIFE		
	☐	☐	TEST AND CHECKOUT REQUIREMENTS		
	☐	☐	TEST/OPERATING PROCEDURES		
	☐	☐	PROCESS SPECIFICATIONS		
	☐	☐	RADIO FREQUENCY OR ELECTROMAGNETIC INTERFERENCE		
	☐	☐	COMPUTER PROGRAMS (FOR USE AT USING SITE)		
	☐	☐	ENGINEERING-CRITICAL COMPONENTS (ITEMS)		
	☐	☐	OTHER ECP'S AFFECTED BY THIS CHANGE		
14.	☐	☐	LOGISTICS		
	☐	☐	SPARES (INCLUDE SPARES MODIFICATION PLAN)		
	☐	☐	GFE/GFP/TRAINERS		
	☐	☐	DATA/PUBLICATIONS		
	☐	☐	AGE AND CYCLE-CRITICAL COMPONENTS (ITEMS)		
15.	☐	☐	INTERFACE		
	☐	☐	PIRN'S ATTACHED:		
			IRD/ICD NO.: _____ PIRN NO.: _____		
			IRD/ICD NO.: _____ PIRN NO.: _____		
			IRD/ICD NO.: _____ PIRN NO.: _____		
	☐	☐	ECP/PIRN COORDINATED WITH ASSOCIATE CONTRACTOR(S) OR MSFC. PROVIDE NAME(S) AND DATE(S) OF INITIATION AND RESULTS OF COORDINATION		
16.	☐	☐	CONTRACT SPECIFICATION(S)/DRAWINGS		
			SPEC. NO.: _____ DWG. NO.: _____		
			SPEC. NO.: _____ DWG. NO.: _____		
	☐	☐	TEXT OF SPECIFICATIONS AFFECTED		
	☐	☐	CONTRACT AND SPECIFICATION REQUIREMENTS		
	☐	☐	PERFORMANCE		
	☐	☐	PAYLOAD CAPABILITY		
	☐	☐	DELIVERY SCHEDULE (UNDELIVERED ITEMS)		
	☐	☐	OTHER		
	☐	☐	SPECIFICATION CHANGES ATTACHED:		
			SPEC. NO.: _____		
			SPEC. NO.: _____		
17.	ESTIMATED TOTAL PROGRAM COSTS AND DETAILED BREAKDOWN ARE PROVIDED IN ENCLOSURE				
18.	SUMMARY OF EFFECT OF PROPOSED AND PREVIOUSLY APPROVED CHANGES ON MAJOR CEI				

Informed

ENGINEERING CHANGE PROPOSAL (ECP)
PREPARATION INSTRUCTIONS - PAGE 1

BLOCK

1 **INSTRUCTIONS**

NAME OF CONTRACTOR - Enter the name and address of contractor.

PCN - Enter the assigned Project Control Number (PCN).

DATE - Enter the original or revised ECP submission date.

2 **PAGE 1 OF** - Enter the total number of pages of the ECP.

CONTRACT NUMBER - Enter the contract number.

CAGE CODE - Enter the contractor's CAGE code per Cataloging Handbook H4/H8.

SYSTEM DESIGNATION - Enter the top level system or project identification.

ECP NUMBER - Assign a unique identification number to each ECP. The ECP number shall consist of a basic ECP number and, when necessary, a dash number. The dash number shall be used to identify related changes to the contractor's other configuration items which are affected by the same ECP.

SUFFIX - A suffix code shall be assigned to designate the ECP type or condition as follows:

TYPE	CODE
Preliminary	P
Formal	F
Compatibility	C
Expedited	E

REV (REVISION) - If the ECP requires revision subsequent to submission for MSFC approval, the contractor shall assign an ECP revision level to designate that the ECP has been changed/revised. The revision level shall consist of the letter "R" followed by a sequential number incremented with each subsequent change to the ECP (e.g., R1, R2, etc.).

When an ECP is revised, a revision log shall be included in the ECP package. The revision log shall contain the following information:

a. Basic ECP number.
b. The date of preparation or updating of revision log.
c. The page designation of the log page.
d. The ECP revision level.
e. Date of the ECP revision.
f. A listing of the pages affected by each revision. Identify the pages that are superseded, added, or deleted.
g. Remarks to explain or clarify the revision action.

3 **RECOMMENDED PRIORITY** - For all Class I changes, assign a proposed priority of emergency, urgent, or routine in accordance with the following criteria:

a. Emergency: Assign this priority if the proposed change is to correct a safety condition which could result in fatal or serious injury to personnel or in extensive damage to or destruction of equipment.

BLOCK

INSTRUCTIONS

b. Urgent: Assign this priority if the proposed change is to correct a potentially hazardous condition which, if uncorrected, could result in injury to personnel or in damage to equipment and reduction of mission effectiveness. Also use this classification for the following:

(1) Changes necessary to meet contractual requirements when lead time would necessitate slipping baselined production, activation, or construction schedules.

(2) Mission capability changes when delay would compromise the mission capability and result in unacceptable impact to contract, production, or mission launch schedules.

(3) Changes associated with interface problems resulting from compatibility changes made by other contractors.

c. Routine: Assign this priority to a proposed change when "emergency" or "urgent" is not acceptable.

A proposed change shall not be processed through the contractor's configuration management process in one priority level and upgrade to a more critical priority upon submission to MSFC.

4 **CEI NUMBER AND NOMENCLATURE** - Enter the contract end item (CEI) part number and nomenclature of the CEI.

PART OR LOWEST ASSEMBLY AFFECTED

PART NUMBER - Enter the part number of the lowest assembly affected by the change.

NAME - Enter the nomenclature of the part listed above.

5 **TITLE OF CHANGE** - Enter a brief but descriptive title indicating the purpose and/or subject of the change.

6 **JUSTIFICATION FOR CHANGE** - Enter a comprehensive definition of the problem which the change proposes to provide. Describe in detail the nature of the problem which substantiates the need for the change, including consequences if the change is not incorporated. The contractor shall make full use of applicable failure data and reference any nonconformance report(s) that provide(s) exact details applicable to the change. When the change is directed toward providing a new capability, describe the capability in quantitative terms (e.g., improvement in payload weight, mission parameters, performance, or data gathering accuracy). Summarize any correspondence or previous coordination leading to the submission of this change. Include a summary of any studies or testing accomplished prior to the submission of the ECP. Check whether this ECP is a contractor-requested change or a response to a procuring activity direction.

7 **ENVIRONMENTAL IMPACT** - Identify and define any potential environmental impact that may result from the approval or disapproval of this proposed change.

8 **DESCRIPTION OF CHANGE** - Check the appropriate block if alternate solution(s) are included. Provide sufficient detail on the change to permit ready identification and evaluation. Include in the description which part(s) of the system or facility item is/are being changed and the type of change being made. Use supplemental drawings, sketches, and analyses to the extent necessary to clearly define the proposed change. Identify if the problem can be resolved by revised operation or maintenance procedures, revised schedules, etc. State the advantages and disadvantages inherent in any feasible alternative approaches to the problem. Include any **alternative** solutions that may be available based on pre-change analysis.

BLOCK

9 **INSTRUCTIONS**

10 **DATE BY WHICH CONTRACTUAL AUTHORITY IS NEEDED** - Enter the date that authority to proceed is required to maintain the effectiveness and change periods proposed in Block 10.

EFFECTIVITY AND MANDATORY CHANGE PERIODS FOR INCORPORATION:

VEHICLE/SITE AND ITEM SERIAL NUMBER - List the applicable site, system, and CEI designation(s) and/or serial number(s) affected by the change.

CHANGE PERIOD - Enter a change period designation for each proposed effectivity. MSFC will provide these designations to the contractor as soon as they are established for the specific MSFC programs.

MOD. (MODIFICATION) KIT DELIVERY DATE - If applicable, enter the date based on the proposed contractual coverage data and change periods, or enter "Not Applicable."

EST. (ESTIMATED) M/H (MAN-HOURS) FOR MOD. (MODIFICATION) KIT INSTL. (INSTALLATION) - Enter the estimated man-hours per unit required to install the change in the item.

OUT-OF-SERVICE TIME - Enter the estimated unit out-of-service time or inoperative time that will be required to incorporate the change.

11 **MODIFICATION, RETEST, REQUALIFICATION:**

YES or NO BLOCKS - Check the appropriate blocks and identify the enclosure and paragraph for any detailed explanation submitted with the ECP. Each block shall be checked and detailed explanation shall be provided for each "YES" block checked.

PREVIOUSLY ISSUED MODIFICATION INSTRUCTIONS AFFECTED - Provide a brief description of any previous modification instructions that will be impacted by the ECP.

PROOFING OF MODIFICATION INSTRUCTIONS AND KIT INSTALLATION REQUIRED - Explain what is required for the proofing of modification instructions and/or kit installation requirements.

RETEST REQUIRED - Identify test(s) invalidated by the change and all retesting that will be required by the ECP.

REQUALIFICATION REQUIRED - Identify the retesting and the plans for requalification for the CEI that that will be required by the ECP.

PAGE TWO HEADING

12

Reenter appropriate data from page 1, Lines 1 and 2.

13 **GENERAL ITEMS AND ACTIVITIES** - Indicate the effect of the change by checking the appropriate "YES" or "NO" box. Enter the enclosure and paragraph identification of data which fully explains the advantages and disadvantages of the proposed change. Use quantitative values whenever applicable. Additional requirements applicable to specific blocks are included in the following subsections.

DEVELOPMENT REQUIREMENTS AND STATUS - This block also includes any effect on items of flight or ground support equipment to be used in conjunction with the change, with a description of their relationship, availability, and impact.

BLOCK **INSTRUCTIONS**

SAFETY - Provide a definitive description of any system safety impact(s) or have available the analysis which supports no impact. As a minimum, the following areas must be considered:

a. The elimination or introduction of and impact to single failure points that could result in loss of life or mission.

b. Any variation in established safety factors or margins.

c. Material changes that would either increase or decrease potential hazards or affect compatibility.

d. Changes that would affect the flammability of material, leakage, or explosions.

e. Changes that would affect limited life, cycle, or age items that are related to potential hazards.

f. Changes in redlines and other launch and flight constraints.

RELIABILITY - Submit a preliminary Reliability Data Summary (RDS) with each applicable ECP submitted for approval. An RDS is required only on flight hardware and/or mission events sequence change-oriented ECPs. The RDS sheet shall include the following:

a. ECP title.
b. ECP number.
c. A brief description of the proposed change.
d. If the change affects the FMEA and criticality determination date for the CEI, provide a brief description. If the FMEA and criticality determination data is not impacted, so state.
e. If there is no change to the reliability data, briefly describe why.

SERVICE LIFE - If the change will have an impact on the service life, provide a description of the impact.

TEST AND CHECKOUT REQUIREMENTS - Describe the impact on or changes to test and checkout requirements. If there is no change, state why not.

TEST/OPERATING PROCEDURES - If there is an impact on the test or operation procedures, a description of the impact shall be provided. If additional test equipment or facilities will be required, the requirements shall be described. If there is no change, state why not.

PROCESS SPECIFICATIONS - If there is a change to process specifications, the requirements for new specifications or changes to existing documents shall be described.

RADIO FREQUENCY OR ELECTROMAGNETIC INTERFERENCE - If the radio frequency or electromagnetic interference requirements for the CEI will be impacted by the ECP, provide a description of the impact.

COMPUTER PROGRAMS - Describe the impacts on any computer programs at the using site or to interfacing CEIs. Identify any impact on the software requirements for the CEI being changed. See Block 16 for additional **information** related to changes to software requirements.

ENGINEERING-CRITICAL COMPONENTS (ITEMS) - If components (items) have been qualified, identify what impact the change will have on qualification, including requalification or changes to qualification requirements.

BLOCK

INSTRUCTIONS

14 **OTHER ECPs AFFECTED BY THIS CHANGE** - Define any impacts on other ECPs or requirements for additional ECPs to other CEIs that will be required because of this change. This will address any requirements to interfacing CEIs that will be required.

LOGISTICS - Check the applicable boxes for logistics support areas that will be affected. If there is no impact on logistics, rationale for the position shall be provided and the following blocks in Block 14 will all be marked "NO." Identify enclosures that provide the detailed explanations.

SPARES (INCLUDE SPARES MODIFICATION PLAN) - If the spares requirements are impacted, the following information shall be addressed and rationale for the impact shall be provided:

a. Identification and description of the specific support materials affected.

b. Identification, description, recommended quantity, and anticipated delivery schedule of any new logistic support material.

c. Effectivity for incorporation of the change in logistics support material and the estimated delivery schedule.

d. Identification and description of logistic support material modification kits and recommended quantity, rework instructions, tools, and equipment required.

e. Effectivity for incorporation of the change in logistics support material and the estimated delivery schedule.

f. A summary of the estimated man-hours for complete and total logistics support conversion.

GFE/GFP/TRAINERS - Identify any impact the ECP will have on existing or new requirements for GFE, GFP, etc.

DATA/PUBLICATIONS - Identify any impact the ECP will have on existing requirements or requirements for new data and publications.

AGE AND CYCLE-CRITICAL COMPONENTS (ITEMS) - Identify any impact the ECP will have on age and cycle-critical component requirements for the CEIs.

15 **INTERFACE** - Identify, by numbers, the documents that will require changes to reflect any change into the CEI's interface requirements and provide PIRNs or define the proposed changes required for the proposed ECP.

PIRNs ATTACHED - List all PIRNs provided as a part of the ECP. If the interface requirements are being changed as a change to the specification, a notation listing the changes that include the proposed interface change shall be included.

ECP/PIRN COORDINATION - Include the names, dates, and results of any interface coordination with associated contractors or MSFC. Include identifying numbers, if available, of the associated contractor's ECPs.

16 **CONTRACT SPECIFICATION(S)/DRAWINGS** - List the number of any specification or drawing affected by the proposed change. The proposed change to each specification and/or drawing for hardware and/or software shall be provided as a part of the ECP package.

BLOCK

INSTRUCTIONS

TEXT OF SPECIFICATION AFFECTED - The specification change submitted with the ECP shall identify the text requiring change in the hardware or software specification.

CONTRACT AND SPECIFICATION REQUIREMENTS - Identify any change required to the contract for the implementation of the ECP. Identify any known changes to interfacing CEI requirements that are not controlled per the contractor's requirements.

PERFORMANCE - Provide a clear description of the change in CEI's performance. Any negative or positive factors shall be included.

PAYLOAD CAPABILITY - Provide a brief description of the impact on payload capability.

DELIVERY CAPABILITY - Identify any impact on delivery if the ECP is approved and/or disapproved.

OTHER - Provide any additional information that may be of benefit in supporting the need for the change.

SPECIFICATION CHANGES (AND DRAWING CHANGES) - List each specification change and each drawing change included in the ECP package. The drawing change shall provide the from/to information for changing the drawing. Format for drawing change is optional.

17 **ESTIMATED TOTAL PROGRAM COSTS AND DETAILED BREAKDOWN ARE PROVIDED IN ENCLOSURE** - Provide, in an attached enclosure, the estimated total change in Program costs, including a breakdown by the following cost elements, as applicable:

a. Development requirements
b. Changes in production, including logistics support.
c. Mod kits, including logistics support material, GFP, and GFE.
d. Special tools.
e. New logistics support material.
f. Retest required for requalification.
g. Factory direct costs.
h. Other cost elements affected by the ECP.

18 **SUMMARY OF EFFECT OF PROPOSED AND PREVIOUSLY APPROVED CHANGES ON MAJOR CEI** - Identify enclosure(s) that summarize(s) the cumulative effort upon performance, payload **capability**, electrical load, etc., caused by previously approved ECPs when design limitations are being approached or exceeded.